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MARYLAND FISHERIES

PUBLISHED BY CONSERVATION DEPARTMENT OF MARYLAND

No. 12 SEPTEMBER, 1931

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PROSPECTS FOR OYSTER SEASON, 1931-32

Deputy Commanders And Inspectors Meet In Baltimore

A MEETING of the Deputy Commanders and Inspectors in those districts where the oyster season begins on September 1 took place in Baltimore on Friday, August 28. A luncheon was served at the Hotel Emerson and a round-table discussion relative to prospects for the coming oyster season and problems in connection with the enforcement of the laws followed. Those present were Swepson Earle, Conservation Commissioner, Chief Clerk H. H. Johnson, Chief Deputy Commander Amos S. Creighton, Chief Clerk E. O. Townsend, and the following Deputy Commanders and Inspectors: D. C. Kinnamon, W. J. Haddaway, W. H. Sanders, E. N. Dixon, James G. Ruth, C. A. Bromwell, J. O. Rodgers, Augustus Adams, George T. Whaland, Lewin Hyland, Carroll Pierson, George W. Miller, Kirby Thompson, George H. Barnes, George A. Cummings, Jr., Carbin T. Simmons, Joseph E. Smith and Vernon F. Thomas, the latter of Baltimore City. Mr. Milton C. Greer, Jr., the Department's Sea-food Auditor, was also present.

Following the luncheon the meeting was addressed by Commissioner Earle who made a very enthusiastic speech, in which he particularly stressed the necessity for each officer of the Department to strictly enforce the oyster laws during the ap-

It is a common sight to see a dozen or more automobiles driving down the beach at low tide to the best fishing grounds, which lie from six to twenty miles below Ocean City, and there you will find anglers at intervals along the sand, waiting expectantly for a strike.

The Red Drum caught along our Maryland coast, range from about 10 to 70 pounds. One caught by Mr. K. C. Watson, Baltimore angler, which was entered in the National Field and Stream contest for largest fish, was taken just below Ocean City, and won first prize, weighing 62 pounds.

Scenes At Ocean City

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proaching season, particularly as to the protection of young growth on the natural bars by seeing that the cull law is carried out and hand scraping prohibited. He also discussed the changes in the laws made by the last session of the Legislature and emphasized the importance of harmony and cooperation among the officers of the Department.

Chief Clerk Johnson next addressed the meeting and further explained the changes in the law; called particular attention to the discrepancies which were noticed last year between the number of bushels of oysters on which inspection tax was paid and the quantity of shells made at the various oyster houses. He also urged all officers to cooperate with the Sea-food Auditor.

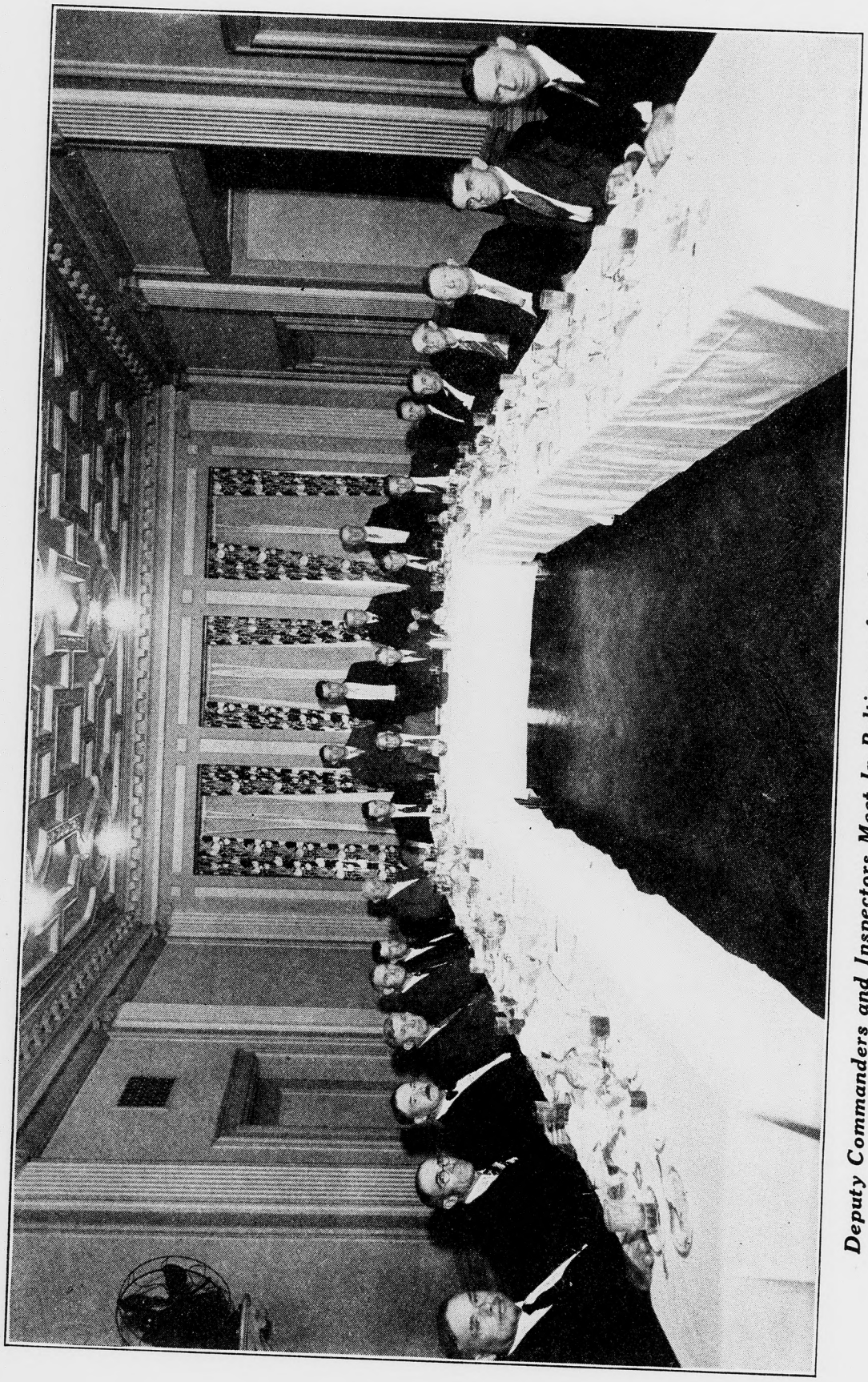
Commissioner Earle then asked the men to give a report of the condition of the oyster rocks in their respective districts as they find them at the present time. The replies were as follows:

Captain James G. Ruth, *Eastern Bay district*—"I have tried the bars and find them in good condition. We have very nice stock this year and quite a good catch of young growth, but the meats are not as good as in previous years. The oysters have finished spawning and are in good condition for fattening."

Captain J. O. Rodgers, *Herring Bay district*—"The outlook for Herring Bay is better than it has been for a number of years—more oysters on Holland Point than usual. However, they do not seem to be growing very fast, but will, no doubt, as soon as the tongers start to work. Long Bar does not have much of a catch. Herring Bay will not be worked until December. Holland Point is in fine condition and the oysters are of good size."

Captain E. N. Dixon, *West and South Rivers district*—"I have inspected the following oyster bars: Three Sisters, Shoe Point, Middle Ground in South River, Saunders Point and Middle Ground in the mouth of West River, and find a nice catch of small oysters on all shells planted. The oysters are in fair condition. Prospects look good for future."

Captain W. H. Sanders, *Severn River district*—"I tried the oysters and find them to contain good meats and they are in good condition for growing. A good catch of young oysters. Prospects for the coming season better than for sometime in past. I have examined Tolley's Point, Hackett's Point, Sand Point and the tongers' ground.



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Captain C. A. Bromwell, *Little Choptank River district*—"I inspected the Little Choptank River about three weeks ago and found that the oysters were fat and in good shape. There is good young growth, but I found a few toad eggs on them. I have not tried all the rocks as yet, including those on the scraping areas." (Report subsequently received shows James Point to have a good catch and no mussels; Ragged Point, 50% marketable oysters and good catch, oysters poor but picking up and no mussels; Hoopers, 50% marketable, few mussels, oysters in poor condition; Hill's Point, no mussels, oysters thin, catch of 3 to 5 spat per shell on planted shells.)

Captain Augustus Adams, *Fishing Creek-Honga River district*—"I examined the rocks in Honga River, Crab Point, Windmill Point, and Long Point. A great number were undersized. No spat has as yet caught on shells on the Experimental Farm."

Captain George T. Whaland, *Chester River district*—"I have inspected Piney Point, Carpenter Point, Holland Point, German Bar, and Copper Head and find that the oysters are in very good condition—clean with a great number of small ones. Very good catch this season. They are healthy and fat. Farther up the river they are not so good; very few mussels, however, and any amount of small growth."

Captain W. J. Haddaway, *Lower Choptank River, Broad and Harris Creek district*—"I tried some rocks in the Choptank River and found a right good catch of young oysters on the old dredging ground. I also tried them on France, where we planted this year. Some young oysters on that bar. The inner rocks and tributary waters were worked very hard last year, but I found that they have a good supply of small oysters, running about 50%. Rocks in nice condition. Oysters seem to be growing in bunches, but I think they will cull out by October. With proper enforcement of the cull law, Broad Creek should have a good supply of oysters. Quite a few running from 2 to 2½ inches. The shells planted last year have a fairly good catch."

Captain D. C. Kinnamon, *Upper Choptank River district*—"There is not much information I can give on the condition of the oysters. I cannot pull a dredge on the boat I now have. Expect to make an inspection trip on the first day of the season and will report to the office. I saw one man who said they were not in very good condition. I find that they pick up more in September and October than the balance of the year. They are always good but naturally scarce up the river. About 3

to 5 bushels per tonger should be the average this year. All the rocks from Castle Haven up, Diamond, Sandy Hill, Holland Point, Little Blackwater, and all other rocks will be examined and reported on. About 50 tongers expect to start the beginning of the season, as there is nothing else for them to do. They are catching plenty of crabs, but getting only 75 cents per 100 pounds. There was an increase of from 170 to 230 barrels per day as the average catch of crabs this year."

Inspector Carroll Pierson, *Chester River district*—"I have inspected Hell's Point and find it in good condition. The oysters were clean and the meats fair. There is plenty of young growth and no mussels."

Inspector George Miller, *Kent Island Narrows district*—"There is nothing I can say except substantiate what the others have said. If we all work together in harmony there will be no trouble in having a good supply of oysters this season."

Inspector Carbin T. Simmons, *Hoopersville district*—"My duties are mostly on land and I am not in a position to tell the situation on the rocks."

Inspector Lewin Hyland, *Chester River and Rock Hall district*—"I do not know anything about the oysters since they were planted last spring, but I heard one tonger who tried them last week say that they were in fine condition, plenty of small oysters in Chester River, but not growing very rapidly. There are any number of undersized oysters on Swan Point, inside and out."

Inspector George A. Cummings, *Tilghmans district*—"I have not seen any oysters during the closed season. However, the crab season has been quite good; some of the crabbers expect to try tonging the first day."

Inspector George H. Barnes, *St Michaels, Miles River district*—"First, I want to tell you that I heartily enjoyed every word you said in regard to the work. I think that if all the inspectors will do as you say, we will get along better and that it makes no difference about complaints coming in that we are too strict, as you will back our work. In regard to our oysters, I have tried them in Miles River. Up from St. Michaels they are very poor and full of blisters, but these do not last long, as they fall off early in October. As to crabs, we have had a nice season. Crabbers made plenty of money, some of them around $100 per week. Of course, this dropped down as the price dropped. One man I know of catches about 900 pounds per day. Our crab season has been very successful

and very little trouble. I only had to confiscate a few and that put an end to illegal crabs."

Chief Deputy Commander Amos S. Creighton—"Mr. Earle and Mr. Johnson covered about everything and there is very little for me to say, except that I will help in every way possible."

Commissioner Earle—"I might add that sometimes the State steamer is sent down the bay to certain districts to deliver a message. Whenever you see the steamer McLane, which will be in commission November 1, be sure to come alongside of her whether she wants you or not. Always look up the steamer, do not make the steamer look for you. In some districts when the steamer arrives the deputy commander's boat cannot be located."

Chief Inspector E. O. Townsend—"Mr. Earle, I would not even dare to say anything after it has been so ably said by my superiors. However, I will add that in the past we have had some complaints and it has been my duty to go to these districts and report directly to you the conditions I found there. I have always done this in the past and will continue to do so in the future. I believe that during the coming season we will have more cooperation than we have had before and we will need it, as I feel that we are going to have an extra hard time during the coming oyster season."

Inspector Vernon F. Thomas, *Baltimore City district*—"I have not much to say. We see all the oysters when they come here, good or bad, from everywhere. I think Baltimore City this year is making preparations for a big year. Two houses, Charles Neubert and R. E. Roberts, are planning to shuck a good many oysters. No doubt we will have plenty of trouble the same as you all, but if we all work together we can help each other."

Sea-food Auditor Milton C. Greer—"I wish to remind the deputy commanders and inspectors that their cooperation is of vital importance in my work and I earnestly solicit it in the future as in the past."

Other information relative to condition of the oyster rocks received since the above meeting shows that Patuxent River, below Battle Creek, according to George W. Parks, inspector in that district, has an excellent catch of young spat growing on the shells planted by the Department.

Deputy Commander George Taylor, of the Pocomoke Sound boat, states that in his 50 years' experience in the oyster bus-

iness he has never seen a better catch than in Pocomoke Sound. All shells are covered with spat, from a size that is barely visible to the size of a finger nail. Pocomoke also had an excellent catch last year.

Owing to the efforts of the Department in placing an additional boat during the spring and summer in Tangier Sound to prevent any bootlegging of young oysters, it is believed that when the Sound is open in November it will show marked improvement, although strict enforcement of the cull law is necessary to take care of the majority of the oysters on the bottoms which are less than three inches.

EXPERIMENTS MADE WITH NEW FISH FOOD

Ever since it inaugurated its policy of rearing trout to legal size or better before placing in the public streams, the Conservation Department has been concerned about the high cost of feed for these fish. A number of commercial fish foods were tried out without success and the loss of fish and results in general always compelled the Department to fall back on the liver diet. The feeding of liver did produce results but the cost is extremely high.

On June 1 of this year, however, a test was begun with a prepared fish food from the Balto Laboratories, at Wilmington, California, and thus far the results obtained with this food have been satisfactory. Six thousand two-inch brook trout were placed in two concrete ponds, 3,000 in each. In one pond the fish were fed beef liver and in the other the Balto fish food (canned fish). Both ponds have been fed the same weights of feed and their needs generously supplied for 120 days. The mortality was eight fish in each pond. There is no apparent difference in the size or vitality of the fish in the ponds, all being very strong and active.

Aside from the fact that the canned fish grows trout equally as well as liver, the waste in feeding the latter is eliminated by feeding the former, and the ponds present a cleaner appearance than with the liver-fed fish. The most important consideration, however, is the cost, which is less than half the cost of liver, and, in addition, the food can be kept indefinitely without fear of spoilage, thus enabling the hatchery to keep a liberal supply on hand and also obviating the necessity for refrigeration, grinding and so forth.

In addition to using the feed for trout, it has been tried out on small-mouth bass fingerlings which are thriving upon it equally as well as the trout.

MARYLAND FISHERIES

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SWEPSON EARLE, Commissioner.

No. 12

SEPTEMBER, 1931

SEA NETTLES AND BATHING BEACHES

ONE of the most serious problems confronting the owners of bathing beaches and those who seek pleasure from the sport of swimming in the waters of the Chesapeake Bay are the vast quantities of sea nettles or jelly fish which have infested our tidal waters during the past two seasons.

Conservation Commissioner Earle recently took the matter up with the U. S. Bureau of Fisheries in an effort to see if there was not some way to control these animals. In the opinion of the Bureau, the lack of rainfall, which caused a very high density of water in the upper Bay, has been the main cause of the great influx of nettles, and it was stated that a severe winter and the establishment of normal rain conditions will do much to relieve the situation.

While attending the annual convention of the Shell-fish Commissioners and Oyster Growers at Sayville, Long Island, the Commissioner took the opportunity to discuss with a number of scientific men present, particularly those who have had charge of experiments in connection with exterminating star-fish by the use of copper sulphate, Maryland's difficulties with jelly fish. It was suggested that an experiment be tried to see if copper sulphate would destroy them.

On the Commissioner's return to Maryland, the copper sulphate experiment was made, about a teaspoonful of the chemical being placed in a bucket of salt water in which there were three sea nettles. In less than a minute the nettles died. Crabs placed in the same water for ten minutes showed no bad effects and, when liberated, swam off actively. The State Department of Health, when consulted on the possibility of copper sulphate being injurious to bathers, advised that it was used in drinking water to purify it, and they saw no reason why it would be injurious to persons bathing in water in which it had been used, since the quantity used would be very small in comparison to the water area.

At the present time experiments are going on at the Marine

Laboratory at Solomons, and it is believed that a liquid solution placed in the water will be more effective than dragging a burlap bag filled with copper sulphate through the water, due to the fact that jelly fish, unlike starfish, remain near the top of the water. Owners of several bathing beaches have tried out copper-sulphate solutions and claim that it is working very well as it not only kills but drives away the nettles. It is, of course, not practicable to treat great areas of water with the solution, but it is thought that it may be successfully used to control nettles in zones adapted to bathing. It is the Commissioner's belief that a severe winter with considerable ice will do more to reduce the number of sea nettles in Chesapeake Bay than any artificial means.

THE OYSTER OUTLOOK

SEPTEMBER 1 ushered in the oyster season in the waters of Maryland. While the watermen from only four counties started to work on this date, namely, Anne Arundel, Kent, Queen Anne's, and Talbot, reports coming in indicate that the supply on the tonging areas is very good, and that oysters while thin, due to late spawning, will improve in quality as the season advances.

This information is encouraging as the Department feels the demand will increase considerably during the month of October when the temperature of the air is cooler and people develop an appetite for this bivalve, which is lacking when high temperatures prevail.

Deputy Commanders of the State Patrol Force in other counties report that the bars examined show oysters to have fair meats at this time. Almost every county reports a good catch of spat, and in some localities a phenomenal one occurred, namely, Pocomoke Sound, where the local deputy commander advises the heaviest catch in fifty years has taken place.

On September 10, the Conservation Commissioner, accompanied by his assistants, made a careful investigation of the oyster rocks above Sandy Point, known as "Head of the Bay." All the rocks examined showed a very healthy condition with a marked catch of spat. Sandy Point was the only exception and it is likely that the oysters will show up better as the season advances, as they have just finished spawning. Love Point, Sandy Point and Nine-Foot Knoll indicate a greater quantity of marketable oysters than Snake Rip, Seven-Foot Knoll and Hodges. There yet remains a month and a half before the dredging season starts and this is the best season

for oysters to grow and fatten. This may make a marked change in the condition of some of the bars in the upper Bay.

While the Potomac River will be closed to dredging as well as the upper part of the Choptank and Honga Rivers, extensive preparations for tonging in these waters have been made, and it is believed that the supply will hold up as well as it did during the last year. The Conservation Department is placing some fast tenders on as auxiliaries to certain patrol boats, in order to cope with night handscraping. This is considered the most serious menace to the oyster supply in the tonging areas and every effort will be made to cope with it.

WHAT IS THE VALUE OF AN OYSTER?

By ROE E. REMINGTON, From *Fishing*.

IN connection with our other work, and recognizing that South Carolina is an important oyster-producing state, we have had occasion to make analyses of several samples of oysters. We found, for instance, that oysters contain as much or more iron than beef liver or spinach, and more copper than any vegetable food analyzed. Now it is readily possible to make a chemical analysis of a food to find out what it contains, and how much, but such an analysis has no value unless it can be used to point to some practical application in the diet.

It has long been known that iron is a constituent of hemoglobin, the red coloring matter of the blood, which is so essential to life. We also remembered that some scientists at the University of Wisconsin have shown within the last four years that a trace of copper in the diet helps in the formation of this hemoglobin in cases of nutritional anemia. So we decided to try feeding oysters to anemic animals. White rats were selected for this study because they can be raised happily in captivity, because they will eat and thrive on almost anything that is good for human food, because they grow thirty times as fast as human beings, and finally because rats have been so thoroughly studied that any deviation from the normal growth of any animal, or any organ or part, can be immediately detected.

Young rats, four weeks of age, when taken from the mothers, were given no food but milk. On such a diet, which lacks some important mineral elements, the rats grew fairly well, but developed in a few weeks a most pronounced anemia, the hemoglobin going down to 35 to 40 per cent of what it should be. When this condition was reached, oysters were added to

the diet. The rats receiving 4 grams (0.14 ounce) of fresh oyster per day recovered in two to three weeks. Those receiving 2 grams (0.07 ounce) recovered in four to five weeks. In all, 66 rats were used to arrive at these conclusions. By burning the oysters and adding the ash to the milk it was shown that the recovery was entirely due to the mineral elements of the oysters which remained in the ash after the oysters were burned.

We also have records of several cases of anemia in young children which have shown remarkable improvement when a few oysters were fed daily. According to the figures given

The Oyster Planter Is Ready To Place the Collectors On His Planting Ground

by an eminent authority as to the iron required daily by a man, one-fourth pint per day of the particular lot of oysters which we used would give all the iron needed to keep the blood in good condition. Since, however, most articles of food contain a little iron, probably even less than this small amount of oysters would make up the deficiency, if eaten regularly. The important application of this kind of work, in my opinion, is that it gives us a new respect for the oyster. Most of us who have acquired a taste for oysters eat them because of their flavor, rather as a condiment than for any thought that they may be necessary and valuable to our health. It now appears that the humble oyster can give us valuable minerals in quan-

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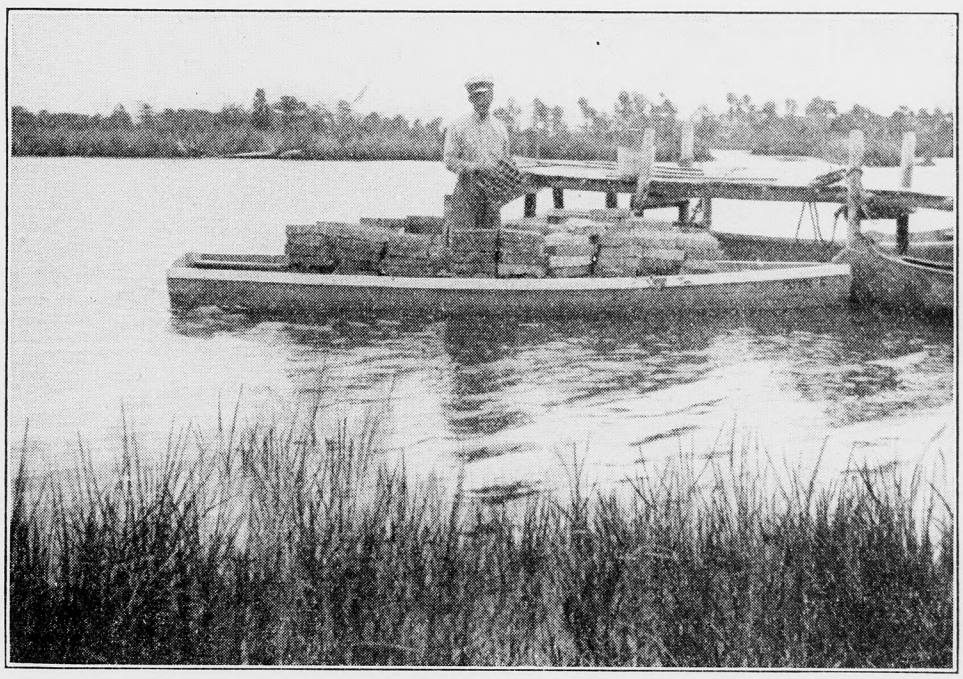

The Oyster Planter Is Ready To Place the Collectors On His Planting Ground

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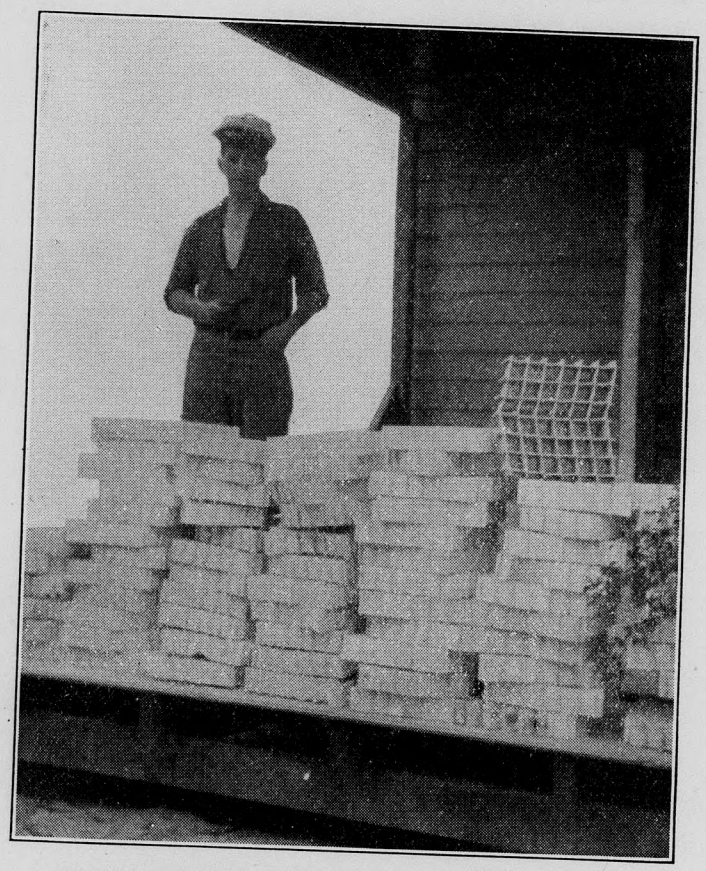
tities found in few other foods, and in palatable form. One of the evidences of the life of the aborigines in this country is the finding of accumulations of oyster shells in most unexpected places. Apparently the Indians held the oyster in high esteem, and were willing to travel long distances in order to get it.

The work described above is not the accomplishment of any one man. We have in this laboratory a number of highly trained scientists, all of whom have cooperated in this study.



Egg-Crate Spat Collectors Prepared for Placing Overboard

However, if such work as this is to be of practical value to the people, it is necessary to know how oysters from different places and at different seasons compare in the treatment of anemia. To this end, we were successful in enlisting the cooperation of the United States Bureau of Fisheries, which is not only assisting us in securing samples from all the important oyster-producing areas in the country but has stationed one of its biochemists in our laboratory at Charleston to work on this problem.

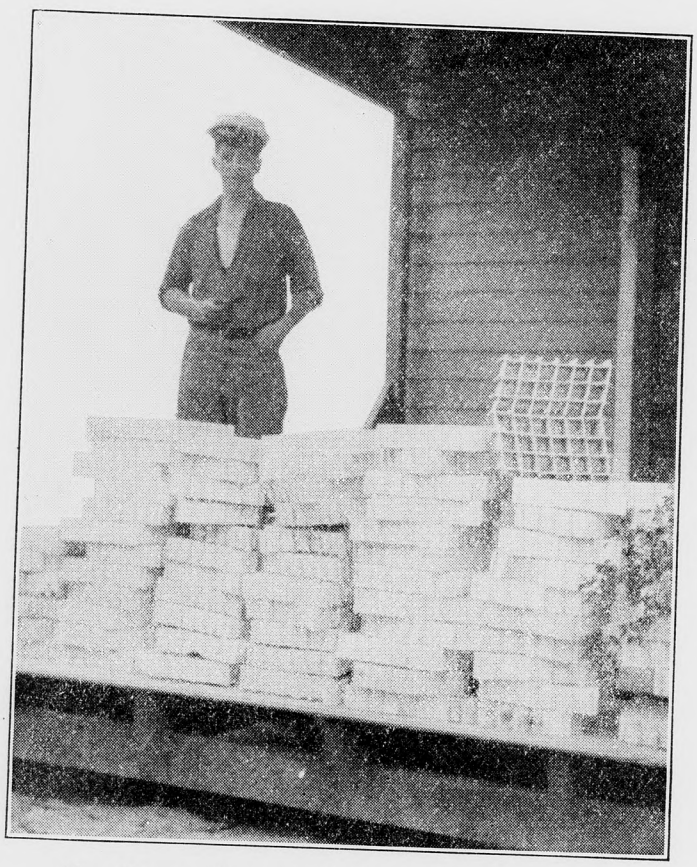
As a result of this cooperation, samples of oysters from some 25 localities, covering the North Atlantic, South Atlantic, Gulf, and Pacific Coast waters were collected in April and have been analyzed. They are now being fed to anemic animals. Other samples from those same beds will be collected in September, and possibly also in mid-winter, to note the effect of season.

In this connection, it should be noted that we have been dealing with what physicians call nutritional or secondary anemia. The so-called pernicious anemia may possibly not respond to oyster feeding.

Another line of study which shows promise for the oyster industry is that of goiter. The adolescent type of goiter, which is most common in young people, is due to a lack of iodine in the diet. The amount of iodine required daily is so small as to be hardly visible, but small as it is, many parts of the United States furnish less than the necessary amount, so that from 50 to 75 per cent of children develop goiter. This form of goiter is most common in those states which surround the Great Lakes, and the Pacific Northwest. Sea foods have long been known to be good sources of iodine. Plants take up iodine from the soil if the soil contains it. In the South Atlantic states people can get enough iodine by eating abundantly of home-grown vegetables, particularly spinach, lettuce, and other pot herbs. In the North Central and Northwestern states, however, this is not true. Oysters and other shell-fish and crustaceans, according to the analyses of this laboratory, contain more iodine than any other common natural food. But here again, before we can do much toward encouraging the use of oysters to prevent or cure goiter, we must know whether this is uniformly true for all oysters, or whether those from any locality, or at any season of the year, are best for the purpose. We must know whether the iodine of the oyster is readily digested and used in the body. To learn this will require chemical analysis of a large number of samples by methods so intricate and refined that the iodine extracted is expressed in parts per billion. It will require the use of large numbers of white rats and other animals, and the expenditure of considerable sums of money. To carry such a study to a logical and successful conclusion will require the cooperation of the oyster industry, as well as those federal and state agencies which may have equipment and trained personnel. Is it worth doing?

tities found in few other foods, and in palatable form. One of the evidences of the life of the aborigines in this country is the finding of accumulations of oyster shells in most unexpected places. Apparently the Indians held the oyster in high esteem, and were willing to travel long distances in order to get it.

The work described above is not the accomplishment of any one man. We have in this laboratory a number of highly trained scientists, all of whom have cooperated in this study.



Egg-Crate Spat Collectors Prepared for Placing Overboard

However, if such work as this is to be of practical value to the people, it is necessary to know how oysters from different places and at different seasons compare in the treatment of anemia. To this end, we were successful in enlisting the cooperation of the United States Bureau of Fisheries, which is not only assisting us in securing samples from all the important oyster-producing areas in the country but has stationed one of its biochemists in our laboratory at Charleston to work on this problem.

As a result of this cooperation, samples of oysters from some 25 localities, covering the North Atlantic, South Atlantic, Gulf, and Pacific Coast waters were collected in April and have been analyzed. They are now being fed to anemic animals. Other samples from those same beds will be collected in September, and possibly also in mid-winter, to note the effect of season.

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SHELL-FISH COMMISSIONERS AND OYSTER DEALERS MEET

THE yearly joint convention of the National Association of Shell-fish Commissioners and the Oyster Growers and Dealers' Association of North America was held at Sayville, Long Island, on August 18 and 19, and Greenport, Long Island, on August 20.

The first two days of the meeting were devoted to the presentation of papers relating to various problems of the shell-fish industry, with particular emphasis on the scientific aspect, and to exhibits and demonstrations. Among the interesting visitors to this year's meeting were: Dr. R. W. Dodgson, M. D., M. R. C. P., M. R. C. S., Director of the Ministry's Shell-fish Research Station at Conway, North Wales; Dr. John W. H. Eyre, M. D., D. P. H., F. R. S., Bacteriologist for Guy's Hospital and The Worshipful Company of Fishmongers, London, England, and Dr. C. M. Yonge, D. Sc., Ph. D., Marine Biological Association Laboratory, Plymouth, England.

Among the interesting papers read during the first day's session were: "Present Trends in Food Industries," by Carl W. Dipman, of the *Progressive Grocer Magazine*, relative to the extent and purpose of the food chain-store systems; "The Marketing of Raw Products," by William H. Ray, president of General Seafoods Corporation, who states that merchandising must keep pace with production in the oyster industry. While in Maryland at least there seems no danger of overproduction at the present time, it is reasonable to believe that with the application of scientific methods, production may rapidly increase, and Mr. Ray states that the industry would be lacking in foresight and vision if it were to bend its efforts to production alone without at the same time carrying on parallel work in marketing. He suggests careful advertising and sanitary and attractive packaging among other things.

Another interesting address by Paul S. Galtsoff, in charge of oyster investigation, U. S. Bureau of Fisheries, related to the introduction and acclimatization of foreign species of oysters in the United States. Dr. Galtsoff states that it is only natural that the oysterman, anxious to improve his stock, should look upon a foreign species with hopes of better success than he has been able to obtain with the native form. He warns, however, that before such foreign species are introduced a number of factors should be considered, such as, whether the species to be introduced has any advantages over the native form, whether there is danger of importing with

it parasites or enemies destructive to the native shell-fish and whether the new environment will meet the requirements of propagation and growth of the foreign species, particularly as to temperature of water which Dr. Galtsoff deems of paramount importance. In conclusion, he says, "One must remember that in most cases best results can be achieved by improving the method of cultivation of the native species rather than by experimenting with the importation of foreign forms."

Other worth-while papers read before the convention were: "Trapping the Oyster Drill," by J. Richard Nelson, New Jersey Oyster Investigation Laboratory; "Combating Enemies of the Oyster," by Miss Louise Palmer, U. S. Bureau of Fisheries; "Maryland's New Marine Laboratory," by Dr. R. V. Truitt, University of Maryland; "Biological Aspects of the Oyster Situation in Virginia," by V. L. Loosanoff, Biologist, Commission of Fisheries of Virginia; "Further Studies of the Setting of Oysters and Their Application in the South Atlantic," by Dr. Herbert F. Prytherch, U. S. Bureau of Fisheries; "Nutritive Value of Oysters,"* by Dr. Roe E. Remington, Food Research Commission, South Carolina; and "The Need for Technological Research in the Oyster Industry," by Dr. H. D. Pease, Director of Research, Oyster Growers and Dealers' Association, and Dr. D. K. Tressler, chief chemist, General Seafoods Corporation, Gloucester, Mass.

On the evening of the first day's business, an illustrated lecture on "The Newly Discovered American Pearl Oyster," with underwater moving pictures taken in Hawaii, was given by Dr. Paul S. Galtsoff, U. S. Bureau of Fisheries. The pictures were extremely interesting and these and the lecture were much enjoyed by the members present.

The second day's sessions were devoted to papers and exhibits by the English representatives to the convention and demonstrations by the Pease Laboratory at the Bluepoints Company plant, at West Sayville. On the final day of the convention, the members were taken on a cruise of the oyster beds off Greenport Harbor, where a display of dredging and oyster cultivation was given, and were later entertained by the Long Island Oyster Farmers at a shore dinner.

* An article by Dr. Remington, reprinted from Fishing, on this subject, appears elsewhere in this magazine.

REPORT OF VIRGINIA FISH STEAMERS OPERATING IN POTOMAC

FOLLOWING a number of complaints from the Potomac River that menhaden fish steamers had assembled in large numbers in this tributary of the Chesapeake and were not only taking menhaden but quantities of food fish, the Conservation Commissioner decided to send the steamer Governor McLane to the Potomac to assist the three local boats, Wicomico, Potomac and Kent, under the respective commands of Captains Cullison, Plowden and Wise, in order to break up any violations should they occur.

The steamer McLane was made ready in Baltimore and placed in commission temporarily under the command of Captain W. W. Flowers. Chief Inspector E. O. Townsend was called to Baltimore and given full charge of the work in Potomac River. Captain Flowers was directed to convey the chief inspector where he desired to go. A stripped crew was secured for the McLane after the transfer of Chief Engineer Hurley from the Tech. The following is the report made by Chief Inspector Townsend on the return of the steamer to Baltimore on August 12:

"Following instructions we left Baltimore, Thursday, August 6, and reached the Potomac on the early morning of the seventh. On arrival at the mouth of the Potomac, I found Captain Cullison, of the Wicomico, who is in charge of the lower Potomac district, at Point Lookout where he was watching for fish violations. On this date, only two steamers were fishing in the river and our inspection of these vessels with Captain Cullison showed them to have about 100,000 menhaden each aboard, but no food fish whatsoever.

"On Saturday, August 8, five steamers came into the Potomac in the morning. These steamers searched for fish but were not successful in catching any. Three of them left the river and proceeded down the Bay, leaving the steamers Phillips and Humphries. Late in the afternoon each of these vessels made a very large haul, about 250,000 menhaden, each. Captain Cullison boarded the boats during their operations and found 12 food fish on the Phillips and none on the Humphries.

"Late Saturday afternoon we proceeded up the Potomac to Colonial Beach, where we conferred with Virginia Inspector Heflin, who stated that his boat in the upper Potomac and the local boat off the mouth of Lower Machodoc were cooperating

in the enforcement of these laws. From Colonial Beach we went to the Wicomico River and saw Captains Wise and Plowden and also Inspector Gibson.

"On Sunday we returned to Smith's Creek and early Monday morning, with Captain Cullison, we proceeded to Point Lookout. The results of the big catch of Saturday afternoon had spread among the other fish steamers in Virginia and there were on that morning 17 steamers in the Potomac. We boarded all those catching fish and the following gives an idea of what these boats caught:

Steamer	*Pedonic*	45,000 menhaden	No food fish
	Thomas McNeal	42,000 menhaden	No food fish
	Dolphin	50,000 menhaden	13 food fish
	C. H. McNeal	25,000 menhaden	No food fish
	Elizabeth Frolick	9,000 menhaden	No food fish
	H. F. Humphries	75,000 menhaden	No food fish

"On Monday afternoon part of this fleet left the river and proceeded down the Bay.

"Tuesday, August 11, the count showed 17 steamers scattered from the mouth of the river up as far as Posey's Bluff. All vessels boarded that day showed that no food fish had been taken. Some reports indicated that the steamers were catching taylor and other food varieties, but I would like to state that from my own knowledge and the statements of the menhaden boats it would be a total loss to nets if taylors were surrounded and they attempted to catch them, as they would cut their way through the purse-nets, due to the fact that the mesh is small and the twine of fine texture.

"Captain Cullison was instructed to continue the daily boarding of fish steamers as long as they came into the river and make a daily report of their catch, and to enable him to devote his entire time to this work, Inspector Clark was instructed to look after the crab inspection work.

"From my supervision and investigation, I am convinced that the one per centum of food fish allowed in accordance with the Virginia law is not being violated by the fish steamers."

INSPECTION OF UPPER BAY OYSTER BARS

FOLLOWING the custom of previous years to inspect the oyster bars prior to the beginning of the dredging season, the Conservation Commissioner, accompanied by Mr. H. H. Johnson, chief clerk, left Baltimore on the State steamer TECH Thursday morning, September 10, and proceeded to the Upper

Bay. The steamer was met by Deputy Commander G. F. Akers, of the patrol boat MURRAY, off Tolchester, and the party, including Captain Creighton, of the TECH, proceeded to investigate the bars.

The bars examined included Hodges, Gales Lump, and Love Point, on the Eastern Shore, and Sandy Point, Snake Rip, Seven and Nine-Foot Knolls, on the western side of the Bay.

Considerable spat and young growth were found on all bars except Sandy Point, and the oysters and shells were found clean of mussels. The Love Point bars showed the largest percentage of marketable oysters with a dredge catch of two bushels of oysters and shells, and when these were culled over it was found that 50% were shells and 25% marketable oysters (3″ and over), and 25% of the oysters around 2″. The meats were found in fair condition and the oysters were through spawning.

Hodges Bar showed a remarkable number of young oysters. When the dredge was hauled aboard it contained about two bushels. Ninety per cent were clean oysters but were under 3″ in size, and it was found that 80% of these oysters contained young growth and were clean of mussels. It would seem impossible for a dredger to make a livelihood on this bar this fall due to the number of small oysters and the few marketable-size oysters. The condition of the oysters was fat but very green.

Gales Lump showed considerable young growth, but the bottom was so hard that a light dredge would not give a fair test, and what oysters were dredged in proved to be of marketable size.

The steamer then proceeded across the Bay to Sandy Point, and the haul of the dredge brought in about two bushels of oysters and shells. After culling over, there was found to be less than a peck of oysters, and about one-half peck of these were marketable size, with but few spat visible. While the oysters showed they were through spawning, the meats were fair and the oysters showed but little green.

Snake Rip bar was then visited. The dredge came in very full of shell and cinder, about 2½ bushels. The young growth on the cinder was found to be very abundant; about one peck of oysters were culled out, and about one-half peck was merchantable. The oysters showed some green, and were about through spawning. The great quantity of young growth on this bar may cause the Department to make another examination before November 1 in order to see whether it is advisable to give it further protection.

The steamer then proceeded to Seven-Foot Knoll. The dredge came up with two bushels of shells, cinder and oysters, and after culling over it was found to contain only one-quarter of a peck of oysters which were of marketable size, and some young growth, but the oysters were found to be quite green.

At Nine-Foot Knoll we found conditions to be very much better than at Seven-Foot Knoll. When the dredge came up it contained about 1½ bushels of shells with little cinder and the shells were found very clean. About 1½ pecks of oysters were culled out from this haul, and about one-half of this quantity were legal-sized oysters. These were in fair condition, showing some green, and considerable young spat was also found on this bar.

Last year the head of the Bay furnished a great quantity of the oysters which were shucked in Maryland. It is little over a month and a half before the dredging season will start, and cool weather will give the oysters at the head of the Bay a chance to fatten and grow. While these bars show a healthy condition, it is difficult to state how well the supply will hold up if many boats resort to the head of the Bay. However, from the present investigation it appears that this region will aid in supplying the oyster demand. The dredging bars below Sandy Point in the Bay will be examined before the beginning of the oyster season to determine their condition and the quantity of oysters found thereon.

OYSTER SEASONS IN MARYLAND

Tonging for oysters opened September 1 in the waters of Chesapeake Bay and the tributaries of the following counties: Anne Arundel, Kent, Queen Anne's, Worcester, Talbot, and the Great Choptank River for Dorchester County residents.

September 15—Potomac River and the Patuxent River and its tributaries. Also waters of Wicomico and Somerset.

October 1—Tributaries of the Potomac River and balance of waters of Dorchester County.

Dredging and scraping season begins November 1, which includes Chesapeake Bay, part of the Great Choptank River, Hooper's Straits, Kedge's Straits, and Tangier Sound.

Potomac River closed to dredging by concurrent legislation passed by the States of Maryland and Virginia. Also part of the Great Choptank River and Honga River closed to scraping by the Acts of the General Assembly of 1931.

CONSERVATION DEPARTMENT FLAG

Since the reorganization of the Conservation Commission and the creation of the Department in 1922, there has been no flag flown on the police steamers of the Maryland Patrol Fleet to designate the Department. The Conservation Commissioner has adopted this flag which will be flown from the foremast head of the steamers "Governor McLane" and "Tech" when the Commissioner is on board. When the Governor

The Department's Flag

is also on board, the Maryland flag will be flown from the foremast head and the Department flag from the aftermast of the "Tech" or the starboard yard arm of the "McLane."

All deputy commanders have been instructed to report alongside either steamer when the steamer is in their district with this flag flying, for conference with the Commissioner.